

AMENDMENT TO THE CLAIMS

1. (Withdrawn) An isolated polynucleotide molecule derivable from a polynucleotide encoding a polypeptide having L-sorbose dehydrogenase activity comprising a partial nucleotide sequence of at least 20 consecutive nucleotides of SEQ ID NO:1.
2. (Withdrawn) The isolated polynucleotide molecule according to claim 1, wherein the partial nucleotide sequence of SEQ ID NO:1 has at least 50 consecutive nucleotides.
3. (Withdrawn) The isolated polynucleotide molecule according to claim 1, wherein the partial nucleotide sequence of SEQ ID NO:1 has at least 100 consecutive nucleotides.
4. (Withdrawn) The isolated polynucleotide according to claim 3 wherein the partial nucleotide sequence is derivable from a polynucleotide sequence having a homology of at least 60% with SEQ ID NO:1 whereby at least 100 consecutive nucleotides are compared.
5. (Withdrawn) The isolated polynucleotide molecule according to claim 1, whereby the partial nucleotide sequence is derivable from a polynucleotide sequence having a homology of at least 80% with SEQ ID NO:1.
6. (Withdrawn) The isolated polynucleotide molecule according to claim 1, whereby the partial nucleotide sequence is derivable from a polynucleotide sequence having a homology of at least 90% with SEQ ID NO:1.
7. (Withdrawn) The isolated polynucleotide molecule according to claim 1, which is selected from the group consisting of SEQ NOs:1, 11, 13, 15, 17, 19, 21 and 26.
8. (Withdrawn) The isolated polynucleotide molecule according to claim 1, wherein the partial nucleotide sequence is selected from the group consisting of SEQ ID NOs:5, 6, 7, 8, 9, 10, 23, and 24.

9. (Currently amended) An isolated polypeptide having L-sorbose dehydrogenase activity encoded by a polynucleotide according to claim 1 comprising: (i) SEQ ID NO: 2; or (ii) an amino acid sequence derivable from SEQ ID NO: 2 by addition, deletion, insertion, or a conservative substitution of one or more amino acids in the amino acid sequence of SEQ ID NO: 2, wherein the conservative substitution is selected from the following substitution: Ala to Val/Leu/Ile, Arg to Lys/Gln/Asn, Asn to Gln/His/Lys/Arg, Asp to Glu, Cys to Ser, Gln to Asn, Glu to Asp, Gly to Pro/Ala, His to Asn/Gln/Lys/Arg, Ile to Leu/Val/Met/Ala/Phe/nor Leu, Lys to Arg/Gln/Asn, Met to Leu/Phe/Ile, Phe to Leu/Val/Ile/Ala/Tyr, Pro to Ala, Ser to Thr, Thr to Ser, Trp to Tyr/Phe, Tyr to Trp/Phe/Thr/Ser, and Val to Ile/Leu/Met/Phe/Ala/nor Leu.

10. (Currently amended) ~~The isolated polypeptide according to claim 9, comprising a partial amino acid sequence of at least 25 consecutive amino acids wherein the isolated polypeptide sequence is selected from the group consisting of SEQ ID NO: 2, 12, 14, 16, 18, 20, 22, and 27.~~

11. (Currently amended) The polypeptide according to claim 9, wherein the ~~partial~~ amino acid sequence is derivable from SEQ ID NO: 2 by conservative substitution ~~has at least 35 consecutive amino acids.~~

12. (Withdrawn) A recombinant DNA molecule for expression of a polypeptide having L-sorbose dehydrogenase activity, said recombinant DNA molecule comprising a polynucleotide according to claim 1.

13. (Withdrawn) An expression vector comprising the recombinant DNA molecule according to claim 12.

14. (Withdrawn) A recombinant organism which has been transformed with the recombinant DNA according to claim 12.

15. (Withdrawn) The recombinant organism according to claim 14, wherein the recombinant DNA is at least partially integrated into the chromosome.

16. (Withdrawn) The recombinant organism according to claim 14, which is selected from the group consisting of fungal, plant, animal and bacterial cells.

17. (Withdrawn) The recombinant organism according to claim 16, wherein the organism is a bacterium of a genus selected from the group consisting of *Gluconobacter*, *Acetobacter*, *Pseudomonas* and *Escherichia*.

18. (Withdrawn) A process for the production of L-ascorbic acid from a substrate selected from D-sorbitol, L-sorbose and L-sorbose comprising: (a) propagating a recombinant organism of claim 14 in an appropriate culture medium and (b) recovering and separating L-ascorbic acid from said culture medium.

19. (Withdrawn) A process for the production of L-ascorbic acid from a substrate selected from D-sorbitol, L-sorbose and L-sorbose comprising: (a) propagating a non-recombinant microorganism encoding a polypeptide according to claim 9 in an appropriate culture medium and (b) recovering and separating L-ascorbic acid from said culture medium.

20. (Withdrawn) A process for the production of L-ascorbic acid comprising contacting a substrate selected from D-sorbitol, L-sorbose and L-sorbose with the isolated polypeptide of claim 9.

21. (Withdrawn) A process for the production of L-ascorbic acid from a substrate selected from D-sorbitol, L-sorbose and L-sorbose comprising: (a) propagating a recombinant of organism according to claim 14 in an appropriate culture medium, (b) isolating and purifying the L-sorbose dehydrogenase, (c) incubating the substrate in the presence of the L-sorbose dehydrogenase of (b), and (d) recovering and separating L-ascorbic acid from the reaction mixture.

22. (Withdrawn) A process for the production of L-sorbose dehydrogenase, wherein a recombinant organism comprising a polynucleotide according to claim 1 is propagated

in an appropriate culture medium, the cells are disrupted and the L-sorbose dehydrogenase is isolated.

23. (Withdrawn) A process for the production of L-sorbose dehydrogenase, wherein a non-recombinant microorganism comprising a polynucleotide according to claim 1 is propagated in an appropriate culture medium, the cells are disrupted and the L-sorbose dehydrogenase is isolated.

24. (Withdrawn) A process for the production of vitamin C comprising converting a substrate into vitamin C in a medium comprising resting cells of a microorganism.

25. (Withdrawn) The process according to claim 24 comprising the steps of: (a) culturing the microorganism under conditions which enable growth, (b) changing of the conditions such that the growth rate of the microorganism is reduced leading to resting cells; and (c) production of vitamin C from the substrate using the resting cells of (b).

26. (Withdrawn) The process according to claim 25 wherein steps (a) and (c) are performed in 2 or more separate vessels.

27. (Withdrawn) The process according to claim 25 wherein step (a) and (c) are not separated by any washing and/or isolation step.

28. (Withdrawn) The process according to claim 24 wherein the microorganism is grown in batch, fed-batch, continuous, or semi-continuous mode.

29. (Withdrawn) The process according to claim 25 wherein step (c) is performed in batch, fed-batch, continuous, or semi-continuous mode.

30. (Withdrawn) The process according to claim 24 wherein the density of the resting cells in the medium measured as OD at 600 nm is at least 10.

31. (Withdrawn) The process according to claim 24 wherein the yield of produced vitamin C is at least 1.8 g/l.
32. (Withdrawn) The process according to claim 24 wherein the microorganism is selected from the group consisting of yeast, algae, and bacteria.
33. (Withdrawn) The process according to claim 24 wherein the microorganism is selected from the group consisting of *Candida*, *Saccharomyces*, *Zygosaccharomyces*, *Schizosaccharomyces*, *Kluyveromyces*, *Chlorella*, *Gluconobacter*, *Acetobacter aceti*, *Pantoea*, *Cryptococcus*, *Pseudomonas* and *Escherichia*.
34. (Withdrawn) The process according to claim 24 wherein the substrate is selected from the group consisting of D-glucose, D-sorbitol, L-sorbose, L-sorbosone, 2-keto-L-gulonate, D-gluconate, 2-keto-D-gluconate and 2,5-diketo-gluconate.
35. (Withdrawn) The process according to claim 24 using a microorganism capable of producing both vitamin C and 2-keto-L-gulonic acid from a substrate and wherein the ratio between the concentration of vitamin C and 2-KGA is more than 0.1.
36. (Withdrawn) The process according to claim 18 further comprising isolation of vitamin C from the medium and optionally one or more purification steps.
37. (Withdrawn) The process according to claim 36 wherein all purification steps are performed in an aqueous environment.
38. (Withdrawn) The process according to claim 18 further comprising separation of vitamin C from components in the medium using electrodialysis.
39. (Withdrawn) The process according to claim 24 further comprising separation of vitamin C from components in the medium using electrodialysis.

40. (Withdrawn) A recombinant organism which has been transformed with the expression vector of claim 13.

41. (Withdrawn) A process for the production of L-ascorbic acid from a substrate selected from D-sorbitol, L-sorbose and L-sorbose comprising: (a) propagating a non-recombinant microorganism encoding the polypeptide according to claim 9 in an appropriate culture medium, (b) isolating and purifying the L-sorbose dehydrogenase, (c) incubating the substrate in the presence of the L-sorbose dehydrogenase of (b), and (d) recovering and separating L-ascorbic acid from the reaction mixture.

42. (Withdrawn) The process according to claim 24 further comprising isolation of vitamin C from the medium and optionally one or more purification steps.